ABSTRACT

A system and method are disclosed which provide a multiplier comprising a linear summation array that is implemented in a manner that enables both signed and unsigned multiplication to be performed. A preferred embodiment utilizes a modified Baugh-Wooley algorithm to enable an optimum even-and-odd linear summation array for performing both signed and unsigned high speed multiplication. That is, a preferred embodiment enables a linear summation array that is smaller in size and simpler in design than the multiplier arrays typically implemented for signed multiplication in the prior art. The modified Baugh-Wooley algorithm of a preferred embodiment translates a signed operand to an unsigned operand to greatly simplify the sign extension for multiplication, and to enable a relatively small multiplier array that does not include sign extension columns to be utilized for performing signed multiplication. The modified Baugh-Wooley algorithm of a preferred embodiment also enables the multiplier to perform unsigned multiplication.